MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

May 29, 1986

TO: Bob Basch, Lansing District
Hazardous Waste Division

FROM: Liz Browne, Technical Services Section
Hazardous Waste Division

SUBJECT: Total Petroleum, Inc., Alma, MID005358130

On May 22, 1986, I conducted a sampling inspection at this facility as part of a Comprehensive Monitoring Evaluation (CME). No violations were found at this time, however, a few areas of concern were noted and are mentioned within the following inspection summary.

Static water levels are taken using the wetted tape method. The line is wiped off and freshly chalked at each well. Results are entered in a field note book that has the well numbers and soundings already recorded. The tape is in 0.01 foot increments allowing measurement suitable for use in making groundwater contour maps. Levels compared favorably with those found with the DNR meter. Top of casing elevations were resurveyed in the summer of 1985, but well depths have not been checked in the recent past.

Purging is accomplished using either of two non-dedicated methods, depending on the speed in which the well recovers. A pitcher pump is the method of preference used by the facility. Several problems are inherent with this method, and will be outlined in the discussion on sampling. Where wells exhibit poor recovery, a bottom filling PVC bailer is used, In either case, purge water is directed into a bucket for measurement, and to allow disposal of the purge water away from the well. A minimum of three casing volumes is purged from each well, even though sampling could take place after a well recovers from being bailed dry once. Distilled water is used to rinse all equipment between wells.

Samples are obtained immediately after purging where possible, and as soon as recovery allows in the wells that run dry. The same equipment is used as for purging. As mentioned, the pitcher pump is the facility's preferred method, but is of some concern when used for sampling. The pump must be primed, introducing water into the well, this should be a factor in determining purge volume, and could be a problem if the water was contaminated. Since the pump operates by suction, there can be a great deal of turbulence which may cause the release of volatile components and precipitation of metals. The pump materials, a metal body and leather collar could cause a change in many parameters. The collar is a prime source of potential cross-contamination.

The sampling and analysis plan indicates that a bailer will be used to sample for any potential contaminant that may volatilize during sampling. This was not done during the sampling. It was suggested that the bailers be used to obtain all samples. The model being used has a bottom emptying device that allows the sampler to regulate the flow into the bottles. Flow was restricted when filling bottles for volatile samples, to reduce aeration. Although this may take more field time, it will yield better samples, by reducing the areas of concern associated with the pitcher pump. By sampling poor recovery wells after they have regained sufficient volume after being purged dry once, the time saved should reduce the overall field time, even if all samples are taken with a bailer.

Most samples are analyzed at the facility laboratory. pH and specific conductance are run the day of the sampling, and the meters are calibrated before each run. The lab has been audited through the National Pollutant Discharge Elimination System (NPDES) on several occasions. Lead and chromium samples are being sent out to Environmental Sciences, Inc. (ESI) in Holland, Michigan since the facility lab has been experiencing some difficulty with these parameters. ESI has been running analysis monthly to build up a data base to establish background. Total Petroleum is currently reporting data from both labs. TOX and selenium samples are analyzed by Canton Analytical Laboratory (CAL) in Ypsilanti. Chain of custody forms are used for all samples sent to ESI or CAL, but no chain of custody records are mainted for the samples analyzed in-house. This should be done through the use of a parameter request sheet, or some other form to show a line of continuity for all samples.

Samples are collected in the proper containers and are preserved and handled appropriately. Metals analysis are run on filtered samples. This should be noted in the sampling and analysis plan, and results should be reported as "dissolved". Field blanks and replicate samples are run occasionally by the facility as a check on the various laboratories.

The sampling and analysis plan needs to be expanded in several areas. The static water level reading method, purge volume determination formula and purge volume measruing technique need to be included. Further information regarding the pitcher pump materials and bailer type should be supplied. Decontamination procedures are also lacking in the plan. The field notebook should be expanded to include notes on field conditions, sample appearance, or odors if unusual, parameters sampled, personnel doing the sampling, date and time of sampling, and any unusual activities that may affect the sample results. An indication of the purging and sampling method used at each well should also be included, since they vary.

The sample parameter list also needs more information. Samples being sent out should be identified, along with the lab being used. It should be noted that all metals are filtered before preservation (dissolved). Sample holding times should accompany the parameter chart. Finally, specific analytical methods with appropriate references should be added. All information regarding the TOX samples needs to be incorporated since it does not appear any where in the plan at this time.

This concludes the sampling and analysis portion of the CME inspection. A final summary letter (which includes the hydrogeo evaluation, statistical review, groundwater conturs, etc.) will soon be forthcoming, and will recommend compliance action, if necessary.

If you have any questions on these points, feel free to call.

cc: Mr. T. McNiel
Mr. J. Bohunsky
C&E File
Ms. M. Murphy, EPA - Region V